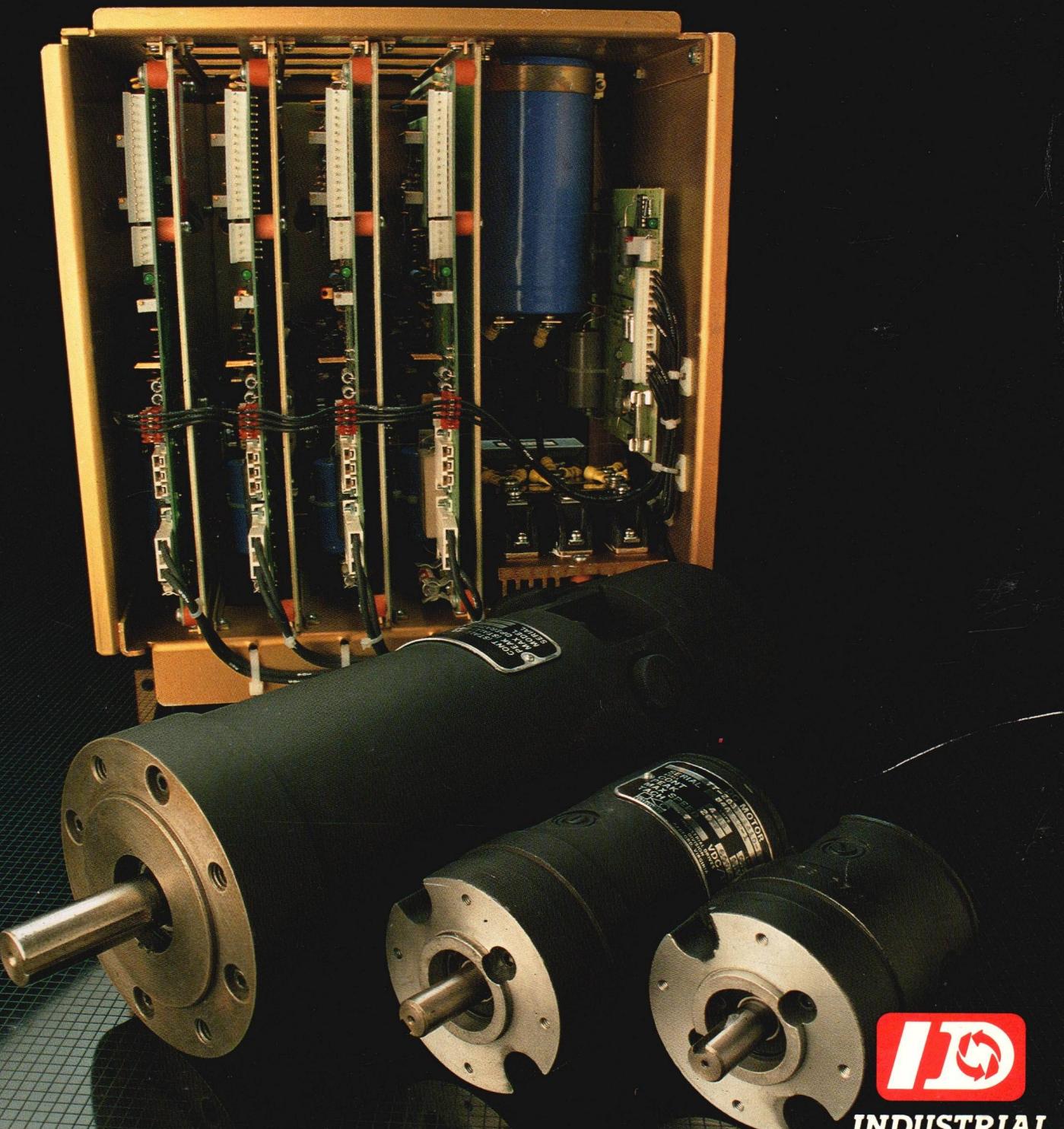


SINGLE BOARD DRIVE

*multiple current levels in a
versatile package from*



**INDUSTRIAL
DRIVES**



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DIVISION

Single Board Drive



INDUSTRIAL DRIVES' Single Board Drive is a versatile, high performance pulse-width modulated DC servo amplifier. Designed for flexibility, multi-axis systems are offered in rack mount or stand-alone versions. A commonly shared power supply and regeneration module reduces cost and cabinet space.

Flexibility goes beyond the packaging and mounting benefits. The SBD has a wide current range offering 6 to 60 amps continuous, 12 to 120 amps peak at voltages as high as 225 VDC. The versatility you demand in designing your system is available with our Single Board Drive.

Features

- Hybridized circuitry reduces package size and enhances reliability.
- Patented modulation scheme recirculates motor current providing very low form factor. Inductors are rarely required.
- A single, conservatively rated power transistor per quadrant results in smaller package size and high reliability.
- Built-in short circuit protection prevents power transistor failures in the event of line to line or line to ground faults.
- A wide range of current ratings (6 to 60 amps) in compatible packaging provides optimum motor/drive combinations.
- Contoured current limiting allows maximum motor utilization without exceeding commutation limits.
- Current foldback circuit protects the drive from long-term overcurrent situations.

Benefits

- Flexible packaging and layout variations are possible with the standard L-bracket design.
- Motor interchangeability facilitated by easily removable compensation card.
- Reduced spares inventory accommodated by upward-downward compatibility and removable compensation card.
- Reliable performance resulting from a thorough environmental chamber burn-in on all units.
- Versatile interfacing due to the use of high current capacity, electrically isolated relay-enabled outputs.
- Extensive fault protection circuitry disables the drive in the event of overcurrent, overvoltage, undervoltage, overtemperature, overspeed, or loss of logic supply voltage.
- Maximum up-time possible by the use of plug-in connectors and a simple board mounting arrangement.
- Industrial Drives offers an extensive Service and Installation manual and knowledgeable customer service support.

SBD Amplifier Specifications

	SBD2	SBD4
Continuous Current	6, 10, 16, 20 amps	30, 45, 60 amps
Peak Current	12, 20, 32, 50 amps	60, 90, 120 amps
DC Bus Voltage	80-225 volts (For requirements from 24 to 80 volts consult factory)	
Operating Temperature Range	0-50°C	
Speed Reference Signal		
Input Impedance	20K Min.	
Full-scale speed reference voltage	± 8 volts (± 3.0V to ± 9.5V upon request)	
Bandwidth	200 Hz.	
Form Factor	1.01	
Logic Supply		
Control Voltage	± 12 volts	± 12 volts
Control Current	± 0.325 amps	± 0.60 amps

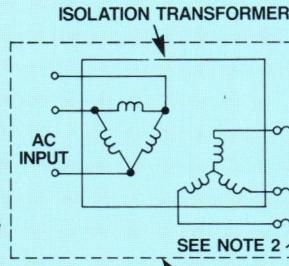
SBD Amplifier Options

Available standard options include direction limits, dual compensation (SBD2 only), master slave and anti-backlash systems. Please consult factory for these and other options.

SBD2 System Wiring Diagram

Connector	Function	Relay	Operational Description	Std. Or Opt. Function
I/O	Enable	NO	Close To Enable	Standard Input
	Torq Hold	NO	Close To Enable	Standard Input
	Ext Limit	NO	Close To Enable	Standard Input
	Dir Limit CW CCW	NC NC	Open To Inhibit	Optional Input
	Comp Switch	NO	Close To Enable Comp 2	Optional Input
Output	OK To Enable	NO	Close For No Fault Detected	Standard Output
	Enabled	NO	Close For No Fault Detected And Amplifier Enabled.	Standard Output

All Functions Require Sink Of 2 mA @ 4 Volts When Closed.



Notes:

* - Customer furnished. Available from Industrial Drives.

1 - VDC = 90 - 225 VDC.

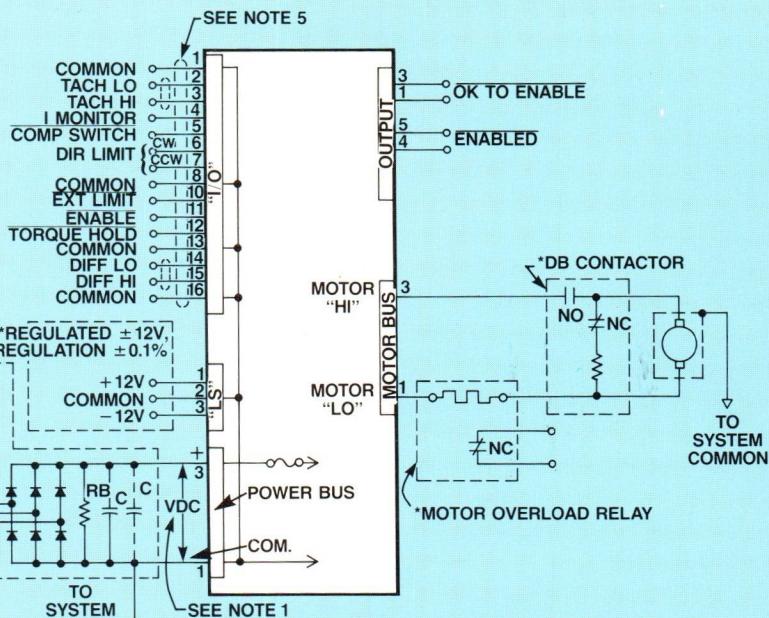
2 - Input fuses should be selected for system requirements.

3 - Customer furnished bus supply. This supply may be either single phase or three phase depending on application. The bus supply indicated is for reference only.

4 - The standard single board amplifier will have a relay output for OK to enable and enabled. An optocoupler output is optional.

Relay - 1 amp 28VDC resistive or .5 amp 120VDC resistive.

5 - Shields are to be terminated to either the N.C. ground or I/O connector, but not to both. One end of shield to be open and insulated.



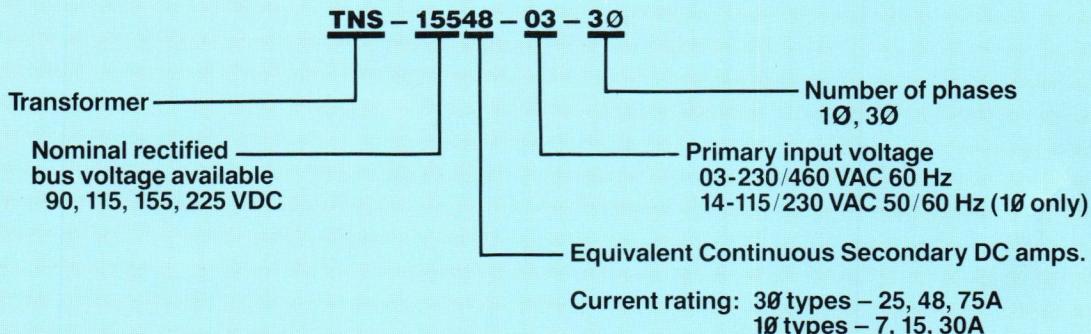
For Reference Only. Refer To Service Manual For Complete Wiring Information.

Power Supply And Transformer Sizing

As the SBD performs as a DC to DC converter, power supply and transformer sizing is based on the sum of the power requirements for individual axes.

Power can be approximated by multiplying the RMS motor voltage (speed) by the RMS motor current (torque). The sum of the individual motor requirements should be less than or equal to both the power rating of the transformer (KVA) and the power supply rating (found by multiplying the rated bus voltage by the rated current). For more detailed information on power supply and transformer sizing consult the factory.

Transformer Model Number System

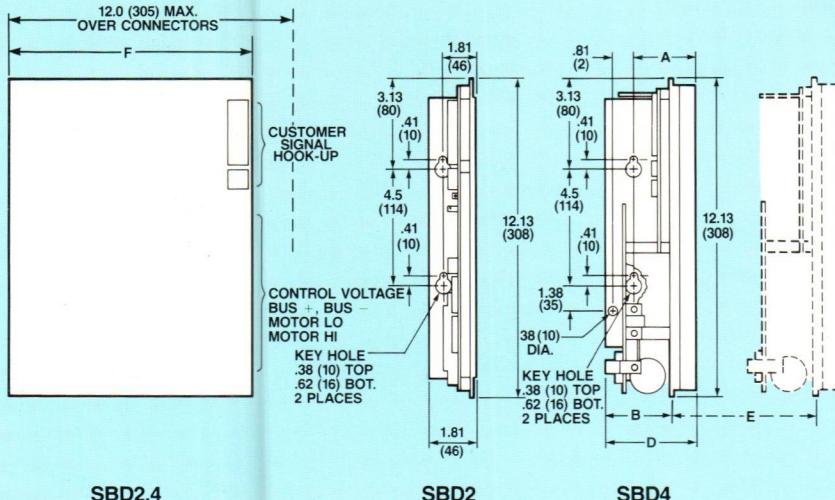


Regeneration Option

The SBD regeneration option is a shunt regulator used to limit power supply bus "pump-up" beyond a fixed voltage limit. Considerations such as load inertia, motor speed, and power supply capacitance will determine the need. This option is available as a stand-alone unit on a standard 2 inch SBD L-bracket (SBR1-1000-160 or SBR1-2000-225 having 160V or 225V rating) or integrated into a power supply. Consult the factory for detailed application information.



Single Board Drive



SBD2,4

SBD2

SBD4

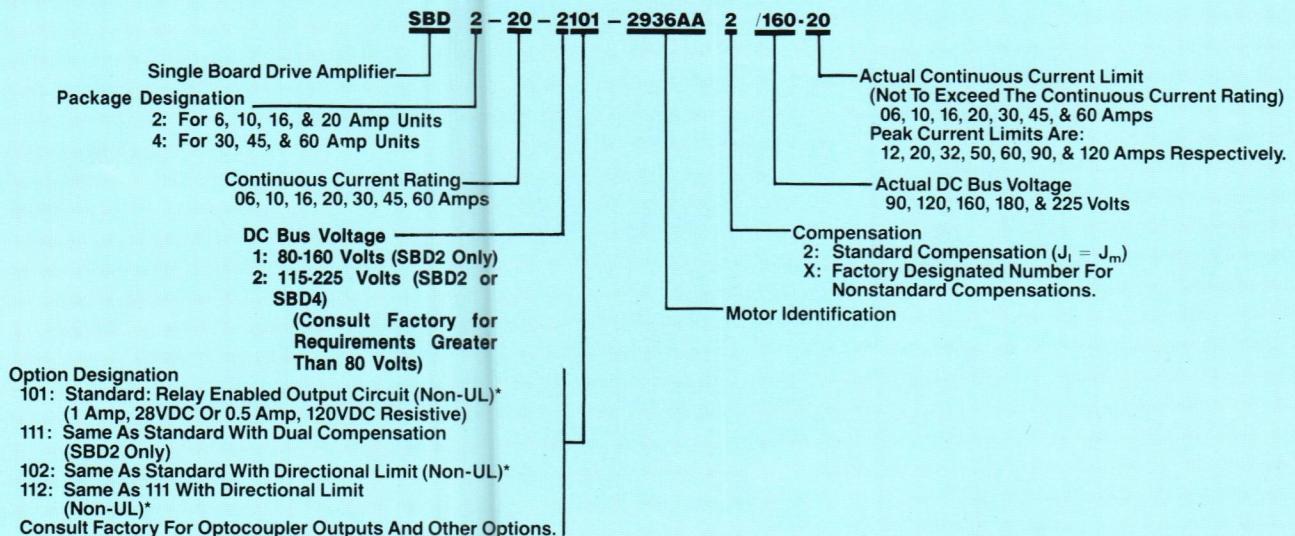
Mounting Dimensions					
AMP	A	B	D	E	F
6, 10, 16, 20	—	—	—	2.0 (51)	9.44 (240)
30	2.44 (62)	2.56 (65)	3.56 (90)	4.0 (102)	9.69 (246)
45	2.44 (62)	2.56 (65)	3.56 (90)	4.0 (102)	9.69 (246)
60	3.63 (92)	2.56 (65)	4.75 (121)	5.19 (132)	9.69 (246)

Notes:

1 - All dimensions in inches with metric equivalents (mm) in parentheses.

2 - SBD's require external cooling to meet rated continuous currents. Contact factory for cooling requirements when used stand alone (not within a frame assy.)

Model Number System



*Consult Factory For UL Status.

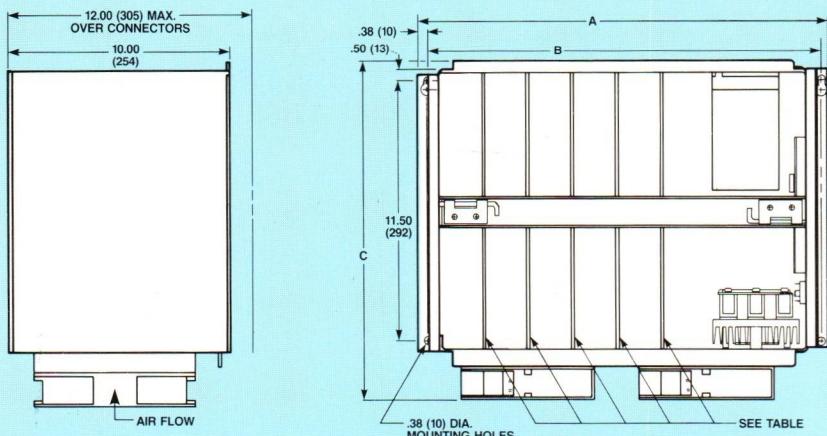
Connector Kits

One connector kit is required for each SBD drive board. Kits will vary depending on the drive and power supply types used.

Connector Kit	Description
SBC2-10X*	For SBD2 with frame assembly
SBC2-00X*	For SBD2 without frame assembly
SBC4-000	For SBD4 with or without frame assembly

* X indicates connector lead length for motor and bus leads; where 0 indicates no leads; 1, 3, or 7 indicates meter(s) of lead length.

SBFP1,3 Power Supply

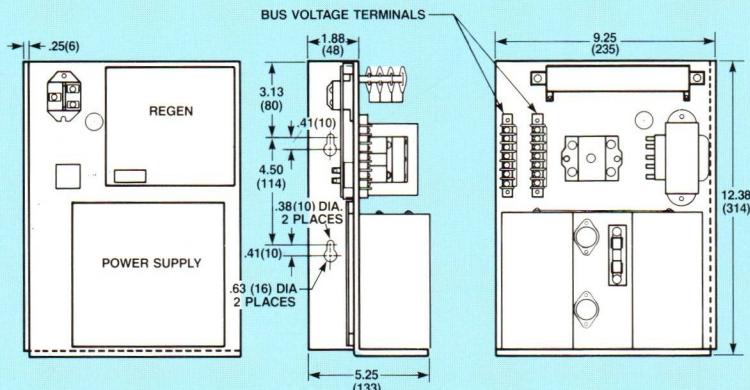


Frame Model	Dimensions			Maximum Configuration (2:SBD2 4:SBD4, 30A; SBD4, 45A 6:SBD4 60A)		
	"A"	"B"	"C"	All One Model	Mixed Models	Models With Regen
SBFP1, 14.5"	14.5 (368.3)	13.75 (349.2)	14.5 (368.3)	2222		222R
SBFP1, 19"	19.0 (482.6)	18.25 (463.5)	14.5 (368.3)	222222		22222R
SBFP3, 19"	19.0 (482.6)	18.25 (463.5)	15.31 (388.9)	444 66	4222, 442 622, 64	422R, 44R, 4R6 62R
SBFP3, 23.5"	23.5 (597)	22.75 (577.8)	15.31 (388.9)	4444 66	422222, 44222, 4442 62222, 662, 642, 6422	42222R, 4422R, 444R 622R, 66R, 644R, 642R

Notes:

- 1 – All dimensions in inches with metric equivalents (mm) in parentheses.
- 2 – Frame configuration numbers indicate order of SBDs to be placed in frame assembly starting on right side closest to power supply.
- 3 – Maximum configuration should not exceed the logic supply capability of 2.4 amps. Individual requirements are as follows:
SBD2 – .325 amp, SBD4 – .6 amp,
RDP – .15 amp, REGEN – 0 amp.

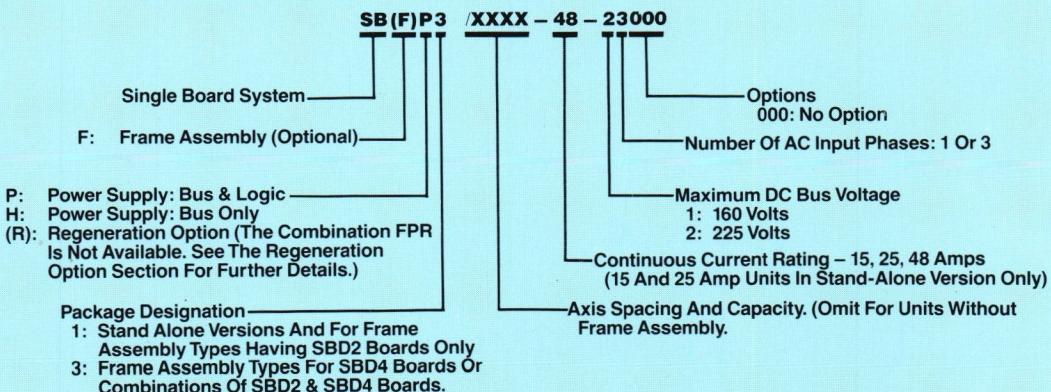
SBPR1 – 25,48 Power Supply



Notes:

- 1 – All dimensions in inches with metric equivalents (mm) in parentheses.
- 2 – Units rated 48 amps require a 3Ø input and external cooling. A 4" fan (90 cfm minimum) mounted within 6" directed toward the rectifiers is required.
- 3 – The unit has a 25 amp rating when operated without external cooling in either a 1Ø or 3Ø configuration.

Model Number System





INDUSTRIAL DRIVES enjoys a reputation of excellence that is based on our constant endeavors to up-date our products. Therefore, the information within this brochure is continually subject to change. Before making any application decisions, we urge you to contact us for current data.



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